

## CLAIMS

What is claimed is:

1. A punching station for a web which comprises:
  - a web transport system that operates to advance the web in a first direction at a first rate;
  - a clamp to intermittently grip a portion of the web and to advance the portion in the first direction at a second rate;
  - a punch coupled to the clamp such that the punch moves in the first direction together with the clamp;
  - a punch block that cooperates with the punch, the punch block coupled to the clamp such that the punch block moves in the first direction in unison with the clamp;
  - a punch actuator to cause the punch to penetrate the web and then to be withdrawn from the web while the web is gripped by the clamp.
2. The punching station of claim 1 wherein the clamp is a resilient grip, the resilient grip extending further toward the web than the punch, the resilient grip to prevent motion of the web in the first direction relative to the punch as the punch penetrates and is withdrawn from the web.
3. The punching station of claim 1 further comprising a sensor to detect a reference mark on the web and to cause the web to be punched at a predetermined location relative to the reference mark.
4. The punching station of claim 1 further comprising a first accumulator that discharges the web to the punch and maintains tension in the portion of the web between the first accumulator and the punch.

5. The punching station of claim 1 further comprising a second accumulator that receives the web from the punch and maintains tension in the portion of the web between the punch and the second accumulator.
6. The punching station of claim 1 further comprising:  
a first toolbar coupled to the clamp and the punch; and  
a second toolbar coupled to the punch block and located on the opposite side of the web from the first toolbar;  
wherein the punch actuator causes each of the first toolbar and the second toolbar to move along respective arcuate paths when the first toolbar and the second toolbar are adjacent the web.
7. The punching station of claim 6 wherein the punch actuator causes each of the first toolbar and the second toolbar to move in a complete circle.
8. A method of punching a web which comprises:  
advancing the web in a first direction at a first rate;  
intermittently gripping a portion of the web;  
advancing the portion in the first direction at a second rate;  
moving a punch in the first direction at the second rate while gripping the portion; and  
punching the web with the moving punch while gripping the portion.
9. The method of claim 8 further comprising intermittently gripping a portion of the web with a resilient grip.
10. The method of claim 9 further comprising:  
moving the resilient grip and the punch along a first arcuate path adjacent a first side of the web; and  
moving a toolbar located on a second side of the web opposite the first side along a second arcuate path adjacent the second side of the web such

that the toolbar and the resilient grip approach one another to grip the web.

11. The method of claim 10 wherein the first arcuate path and the second arcuate path are each a complete circle.
12. The method of claim 8 further comprising detecting a reference mark on the web and moving the punch to cause the web to be punched at a predetermined location relative to the reference mark.
13. The method of claim 8 further comprising maintaining a loop of the web adjacent the portion that accommodates differences between the first rate and the second rate.
14. A punching station for a web which comprises:
  - means for advancing the web in a first direction at a first rate;
  - means for intermittently gripping a portion of the web;
  - means for advancing the portion in the first direction at a second rate;
  - means for moving a punch in the first direction at the second rate while gripping the portion; and
  - means for punching the web with the moving punch while gripping the portion.
15. The punching station of claim 14 wherein means for intermittently gripping a portion of the web is a resilient grip.
16. The punching station of claim 15 further comprising:
  - means for moving the resilient grip and the punch along a first arcuate path adjacent a first side of the web; and
  - means for moving a toolbar located on a second side of the web opposite the first side along a second arcuate path adjacent the second side of the

web such that the toolbar and the resilient grip approach one another to grip the web.

17. The punching station of claim 16 wherein the first arcuate path and the second arcuate path are each a complete circle.
18. The punching station of claim 14 further comprising means for detecting a reference mark on the web and means for moving the punch to cause the web to be punched at a predetermined location relative to the reference mark.
19. The punching station of claim 14 further comprising means for maintaining a loop of the web adjacent the portion that accommodates differences between the first rate and the second rate.